



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant : MacIsaac  
Appl. No. : 10/722,423  
Filed : 11/28/2003  
Title : NETWORK BANDWIDTH ANOMALY DETECTOR APPARATUS,  
METHOD, SIGNALS AND MEDIUM

Grp./A.U. : 2631  
Examiner :

Docket No.: 14534

Honorable Assistant Commissioner of Patents  
Alexandria, VA 22313-1450

Sir:

**PTO CUSTOMER NO. 000293**

INFORMATION DISCLOSURE STATEMENT

In accordance with 37 C.F.R., §§ 1.97-1.99, applicant submits the following information which may be of interest to the examiner in charge of the above referenced application for patent. Only copies of the non-US references listed on the attached Form PTO-1449 are attached.

Respectfully submitted,

DOWELL & DOWELL, P. C.

Ralph A. Dowell, Reg. No.: 26,868  
Date: March 4, 2004

DOWELL & DOWELL, P.C.  
Suite 309, 1215 Jefferson Davis Highway  
Arlington, Virginia 22202  
Telephone: (703) 415-2555



Substitute for form 1449A/PTO

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet

1

of 3

**Complete if Known**

Application Number	10 722 423
Filing Date	11/28/03
First Named Inventor	Gary Lorne MacIsaac
Art Unit	2631
Examiner Name	

Attorney Docket Number 82977-6

**U.S. PATENT DOCUMENTS**

Examiner	Cite No. <sup>1</sup>	Document Number Number - Kind Code <sup>2</sup> (if known)	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
A1		US-5,606,668	02-25-1997	Shwed	
A2		US-6,088,804	07-11-2000	Hill et al.	
A3		US-5,892,903	04-06-1999	Klaus	
A4		US-5,343,465 A	08-30-1994	Khalil	
A5		US-6,321,338 B1	11-20-2001	Porras et al.	
A6		US-2002/0002686 A1	01-03-2002	Vange et al.	
A7		US-2002/0176369 A1	11-28-2002	Porikli et al.	
A8		US-6,292,466 B1	09-18-2001	Droz, Patrick	
A9		US-6,499,107 B1	12-24-2002	Gleichauf et al.	
A10		US-5,488,715	01-30-1996	Wainwright, Paul	
A11		US-2002/0166063 A1	11-07-2002	Lachman et al.	
A12		US-2002/078381 A1	06-20-2002	Farley et al.	
A13		US-6,393,316 B1	05-21-2002	Gillberg et al.	
A14		US-2003/0084327 A1	05-01-2003	Lingafelt et al.	
A15		US-			
A16		US-			
A17		US-			
A18		US-			
A19		US-			
A20		US-			

**FOREIGN PATENT DOCUMENTS**

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> - Number <sup>4</sup> - Kind Code <sup>5</sup> (if known)				
	B1	WO 99/40703 A1	08-12-1999	Ericsson Aus. Pty. Ltd.		<input type="checkbox"/>
	B2	WO 01/80524 A3	10-25-2001	Circadence Corp.		<input type="checkbox"/>
	B3	WO 01/46807 A1	06-28-2001	MCI Worldcom, Inc.		<input type="checkbox"/>
	B4	EP 0 999 718 A1	10-05-2000	Nortel Networks Corp.		<input type="checkbox"/>
	B5	WO 02/21802 A1	03-14-2002	Univ. of Michigan		<input type="checkbox"/>
	B6	WO 02/21244 A2	03-14-2002	Univ. of Michigan		<input type="checkbox"/>
	B7	WO 02/21801 A1	03-14-2002	Univ. of Michigan		<input type="checkbox"/>
	B8	WO 02/21302 A1	03-14-2002	Mazu Networks, Inc.		<input type="checkbox"/>
	B9	WO 02/21800 A1	03-14-2002	Univ. of Michigan		<input type="checkbox"/>

Examiner Signature

Date Considered

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Kind Codes of U.S. Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: TUnsaved Document 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231

Unsaved Document



Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number.

Substitute for form 1449A/PTO

INFORMATION DISCLOSURE  
STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet 2 of 3

## Complete if Known

Application Number	10 722 423
Filing Date	11/28/03
First Named Inventor	Gary Lorne MacIsaac
Art Unit	2631
Examiner Name	

Attorney Docket Number 82977-6

## FOREIGN PATENT DOCUMENTS

Examiner Initials*	Cite No. <sup>1</sup>	Foreign Patent Document	Publication Date MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear	T <sup>6</sup>
		Country Code <sup>3</sup> - Number <sup>4</sup> - Kind Code <sup>5</sup> (If known)				
B10	WO 02/21296 A1		03-14-2002	Mazu Networks, Inc.		
B11	WO 02/21771 A1		03-14-2002	Mazu Networks, Inc.		
B12	WO 02/21297 A1		03-14-2002	Mazu Networks, Inc.		
B13	WO 02/19661 A3		03-07-2002	Top Layer Networks, Inc.		
B14	WO 02/025402 A3		03-28-2002	BBNT Solutions LLC		
B15	WO 02/03084 A1		01-10-2002	Netrake Corporation		
B15	WO 99/48303 A2		09-23-1999	Cisco Tech Ind.		<input type="checkbox"/>
						<input type="checkbox"/>

Examiner Signature	Date Considered
--------------------	-----------------

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup>Applicant's unique citation designation number (optional). <sup>2</sup>Kind Codes of U.S. Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup>Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup>For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup>Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup>Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: TUnsolved Document 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231

Unsolved Document



PTO/SB/08B (10-01)

Approved for use through 10/31/2002. OMB 0651-0031

U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it contains a valid OMB control number

Substitute for form 1449B/PTO

## INFORMATION DISCLOSURE STATEMENT BY APPLICANT

(use as many sheets as necessary)

Sheet

3 of 3

### Complete if Known

Application Number	10722403
Filing Date	11/28/03
First Named Inventor	Gary Lorne MacIsaac
Art Unit	2631
Examiner Name	
Attorney Docket Number	82977-6

### OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS

Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	C1	CERT and FedCIRC, "CERT Advisory CA-2000-01 Denial-of-Service Developments", Computer Emergency Response Team of Carnegie-Mellon University Software Engineering Institute, January, 2001, online: <a href="http://www.cert.org/advisories/CA-2000-01.html">http://www.cert.org/advisories/CA-2000-01.html</a> (date accessed: 24 February 2004).	
	C2	H. DEBAR et al., "Towards a taxonomy of intrusion-detection systems" (1999) 31:8 Computer Networks 805.	
	C3	M. ROUGHAN et al., "Real-Time Estimation of the Parameters of Long-Range Dependence" (2000) 8:4 IEEE/ACM Trans. on Networking 467.	
	C4	B.C. SOH et al. "Setting optimal intrusion-detection thresholds" (1995) 14:7 Computers & Security Int'l J. 621.	
	C5	J. MIRKOVIC et al. "A Taxonomy of DDoS Attacks and DDoS Defense Mechanisms" University of California, Los Angeles, Computer Science Department Technical Report #020018, published prior to December 13, 2002, online: <a href="http://www.cs.ucla.edu/ddos/ucla_tech_report_020018.pdf">http://www.cs.ucla.edu/ddos/ucla_tech_report_020018.pdf</a> (date accessed: 24 February 2004).	
	C6	D. MOORE et al. "Internet Quarantine: Requirements for Containing Self-Propagating Code" University of California, San Diego, August, 2001, online: <a href="http://www.caida.org/outreach/papers/2003/quarantine/worm-infocom03.pdf">http://www.caida.org/outreach/papers/2003/quarantine/worm-infocom03.pdf</a> (date accessed: 24 February 2004).	
	C7	P. BARFORD et al. "A Signal Analysis of Network Traffic Anomalies" November, 2002, online: <a href="http://www.icir.org/verm/imw-2002/imw2002-papers/173.pdf">http://www.icir.org/verm/imw-2002/imw2002-papers/173.pdf</a> (date accessed: 24 February 2004).	
	C8	T. M. GIL et al. "MULTOPS: a data-structure for bandwidth attack detection" Proceedings of the 10th USENIX Security Symposium, Washington, D.C., August 2001, online: <a href="http://pdos.csail.mit.edu/thomer/mit/multops_usenix2001.pdf">http://pdos.csail.mit.edu/thomer/mit/multops_usenix2001.pdf</a> (date accessed: 24 February 2004).	

Examiner Signature	Date Considered
--------------------	-----------------

EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> Applicant is to place a check mark here if English language Translation is attached.

Burden Hour Statement: This form is estimated to take 2.0 hours to complete. Time will vary depending upon the needs of the individual case. Any comments on the amount of time you are required to complete this form should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Assistant Commissioner for Patents, Washington, DC 20231.

Unsaved Document